

WHAT IS CLAIMED IS:

1. An input/output coupling structure for a dielectric waveguide resonator to be mounted on a printed circuit board, comprising:

5 a region defined in said printed circuit board, said region being surrounded by a first conductive film, a second conductive film and a conductive wall, said first conductive film being formed on the front surface of said printed circuit board and connected to a microstrip line on said printed circuit board, said second conductive film being formed on the back surface of said printed circuit board, said conductive wall connecting the respective
10 peripheries of said first and second conductive films;

a first slot formed in the front surface of said region; and

a second slot formed in a surface of said dielectric waveguide resonator, said surface of said dielectric waveguide resonator being disposed to be opposed to said region of said printed circuit board,

15 wherein said first and second slots are adapted to be disposed in opposed relation to one another.

2. The input/output coupling structure as defined in claim 1, wherein said conductive wall is formed of a plurality of through-holes filled with conductive material.

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3. An input/output coupling structure for a dielectric waveguide resonator to be mounted on a printed circuit board, comprising:

a mode conversion region defined in said printed circuit board, said region being surrounded by a first conductive film, a second conductive film and a conductive wall, said
25 first conductive film being formed on the front surface of said printed circuit board and connected to a TEM-mode microstrip line on said printed circuit board, said second conductive film being formed on the back surface of said printed circuit board, said conductive wall connecting the respective peripheries of said first and second conductive films;

a first slot formed in the front surface of said region; and

a second slot formed in a surface of said dielectric waveguide resonator, said surface of said dielectric waveguide resonator being disposed to be opposed to said region of said printed circuit board,

5 wherein said first and second slots are adapted to be disposed in opposed relation to one another to achieve TE mode coupling.

4. The input/output coupling structure as defined in claim 3, wherein said conductive wall is formed of a plurality of through-holes filled with conductive material.

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